H1055

0054245

RECRA ENVIRONMENTAL INC.

Chemical and Environmental Measurement Information

Recra LabNet Philadelphia
Analytical Report

Client: TNU-HANFORD B00-076
RFW#: 0009L741
SDG/SAF#: H1055/B00-076

W.O.#: 10985-001-001-9999-00
Date Received: 09-[illegible]-00

METALS CASE NARRATIVE

1. This narrative covers the analyses of 2 TCLP leachates.

2. The samples were prepared and analyzed in accordance with methods checked on the attached glossary.

3. All analyses were performed within the required holding times.

4. The cooler temperature has been recorded on the Chain of Custody.

5. All Initial and Continuing Calibration Verifications (ICV/CCVs) were within the 90-110% control limits.

6. All Initial and Continuing Calibration Blanks (ICB/CCBs) were within control limits (less than the PQL).

7. All preparation/method blanks (MB) were within method criteria {less than the Practical Quantitation Limit (3X the IDL), MB value less than 5% of the RCRA limit, or samples greater than 20X MB value}. Refer to the Inorganics Method Blank Data Summary.

8. All ICP Interference Check Standards were within control limits.

9. All laboratory control samples (LCS) were within the laboratory control limits. Refer to the Inorganics Laboratory Control Standards Report.

10. All duplicate analyses were within the 20% Relative Percent Difference (RPD) control limits. Refer to the Inorganics Precision Report.

11. The TCLP extract from sample B107J4 was selected for the matrix spike (MS) for this analytical batch. All MS recoveries were greater than 50% as per method criteria.

001 Pages
~~002~~ 11/9/00

12. For the purposes of this report, the data has been reported to the Instrument Detection Limit (IDL). Values between the IDL and the Practical Quantitation Limit (PQL) are acquired in a region of less-certain quantification.

13. I certify that this sample data package is in compliance with SOW requirements, both technically and for completeness, other than the conditions detailed above. Release of the data contained in this hard-copy data package has been authorized by the Laboratory Manager or a designee, as verified by the following signature.

J. Michael Taylor
VP, Laboratory General Manager
Lionville Laboratory

11-8-00
Date

jjw/m09-741

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METALS METHOD GLOSSARY

The following methods are used as reference for the digestion and analysis of samples contained within this Recra Lot#: 0009L741

Leaching Procedure: __1310 _X1311 __1312 __Other:_____

CLP Metals __ Digestion and __ Analysis Methods: __ILM03.0 __ILM04.0

Metals Digestion Methods: __3005A __3010A __3015 __3020A __3050B __3051 __200.7 __SS17
__Other: _____

Metals Analysis Methods

	SW846	EPA	STD MTD	EPA OSWR	USATHAMA
Aluminum	__6010B	__200.7			__99
Antimony	__6010B __7041 [5]	__200.7 __204.2			__99
Arsenic	__6010B __7060A [5]	__200.7 __206.2	__3113B		__99
Barium	__6010B	__200.7			__99
Beryllium	__6010B	__200.7			__99
Bismuth	__6010B [1]	__200.7 [1]		__1620	__99
Boron	__6010B	__200.7			__99
Cadmium	X6010B __7131A [5]	__200.7 __213.2			__99
Calcium	__6010B	__200.7			__99
Chromium	X6010B __7191 [5]	__200.7 __218.2			__SS17
Cobalt	__6010B	__200.7			__99
Copper	__6010B __7211 [5]	__200.7 __220.2			__99
Iron	__6010B	__200.7			__99
Lead	X6010B __7421 [5]	__200.7 __239.2	__3113B		__99
Lithium	__6010B __7430 [4]	__200.7		__1620	__99
Magnesium	__6010B	__200.7			__99
Manganese	__6010B	__200.7			__99
Mercury	__7470A [3] __7471A [3]	__245.1 [2] __245.5 [2]			__99
Molybdenum	__6010B	__200.7			__99
Nickel	__6010B	__200.7			__99
Potassium	__6010B __7610 [4]	__200.7 __258.1 [4]			__99
Rare Earths	__6010B [1]	__200.7 [1]		__1620	__99
Selenium	__6010B __7740 [5]	__200.7 __270.2	__3113B		__99
Silicon	__6010B [1]	__200.7		__1620	__99
Silica	__6010B	__200.7		__1620	__99
Silver	__6010B __7761 [5]	__200.7 __272.2			__99
Sodium	__6010B __7770 [4]	__200.7 __273.1 [4]			__99
Strontium	__6010B	__200.7			__99
Thallium	__6010B __7841 [5]	__200.7 __279.2 __200.9			__99
Tin	__6010B	__200.7			__99
Titanium	__6010B	__200.7			__99
Uranium	__6010B [1]	__200.7 [1]		__1620	__99
Vanadium	__6010B	__200.7			__99
Zinc	__6010B	__200.7			__99
Zirconium	__6010B [1]	__200.7 [1]		__1620	__99

Other:_____ Method:_____

003

METHOD REFERENCES AND DATA QUALIFIERS

DATA QUALIFIERS

U = Indicates that the parameter was not detected at or above the reported limit. The associated numerical value is the sample detection limit.

* = Indicates that the original sample result is greater than 4x the spike amount added.

ABBREVIATIONS

MB = Method or Preparation Blank.
MS = Matrix Spike.
MSD = Matrix Spike Duplicate.
REP = Sample Replicate
LCS = Laboratory Control Sample.
NC = Not calculated.

ANALYTICAL METAL METHODS

1. Not included in the method element list.

2. Modified Hg: Hg1 and Hg2 require less total volume of digestate due to the autosampler analysis. Sample volumes and reagents for mercury determinations in water and soil have been proportionately scaled down to adapt to this semi-automated technique. The sample volume used for water analysis is 33 mL. For soils, 0.1 grams of sample is taken to a final volume of 50 mL (including all reagents).

3. Modified Hg: Hg1 and Hg2 require less total volume of digestate due to the autosampler analysis. Sample volumes and reagents for mercury determinations in water and soil have been proportionately scaled down to adapt to this semi-automated technique. The sample volume used for water analysis is 33 mL. For soils, three 0.1 gram of sample is taken to a final volume of 50 mL (including all reagents).

4. Flame AA.

5. Graphite Furnace AA.

004 Days
~~005~~ 11/96

Recra LabNet - Lionville

INORGANICS DATA SUMMARY REPORT 11/06/00

CLIENT: TNUHANFORD B00-076 H1055 RECRA LOT #: 0009L741

WORK ORDER: 10985-001-001-9999-00

SAMPLE	SITE ID	ANALYTE	RESULT		UNITS	REPORTING LIMIT	DILUTION FACTOR
-003	B107K0	Cadmium, TCLP Leachate	4.8	u	UG/L	4.8	1.0
		Chromium, TCLP Leachate	37.6		UG/L	3.5	1.0
		Lead, TCLP Leachate	79.0		UG/L	22.1	1.0
-004	B107J4	Cadmium, TCLP Leachate	4.8	u	UG/L	4.8	1.0
		Chromium, TCLP Leachate	42.3		UG/L	3.5	1.0
		Lead, TCLP Leachate	22.1	u	UG/L	22.1	1.0

005 Day
~~006~~ 11/9

Recra LabNet - Lionville

INORGANICS METHOD BLANK DATA SUMMARY PAGE 11/06/00

CLIENT: TNUHANFORD B00-076 H1055 RECRA LOT #: 0009L741

WORK ORDER: 10985-001-001-9999-00

SAMPLE	SITE ID	ANALYTE	RESULT		UNITS	REPORTING LIMIT	DILUTION FACTOR
BLANK1	99L1626-MB1	Cadmium, TCLP Leachate	4.8	u	UG/L	4.8	1.0
		Chromium, TCLP Leachate	3.5	u	UG/L	3.5	1.0
		Lead, TCLP Leachate	22.1	u	UG/L	22.1	1.0
BLANK2	99L1626-MB2	Cadmium, TCLP Leachate	4.8	u	UG/L	4.8	1.0
		Chromium, TCLP Leachate	6.4		UG/L	3.5	1.0
		Lead, TCLP Leachate	22.1	u	UG/L	22.1	1.0

006 Days
~~007~~ 11/9/00

Recra LabNet - Lionville

INORGANICS ACCURACY REPORT 11/06/00

CLIENT: TNUHANFORD B00-076 H1055 RECRA LOT #: 0009L741

WORK ORDER: 10985-001-001-9999-00

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	INITIAL RESULT	SPIKED AMOUNT	%RECOV	DILUTION FACTOR(SPK)
-004	B107J4	Cadmium, TCLP Leachate	842	4.8 u	1000	84.2	1.0
		Chromium, TCLP Leachat	4180	42.3	5000	82.8	1.0
		Lead, TCLP Leachate	4300	22.1 u	5000	85.9	1.0

007 Day
~~008~~ 0
11/9/0

Recra LabNet - Lionville

INORGANICS PRECISION REPORT 11/06/00

CLIENT: TNUHANFORD B00-076 H1055 RECRA LOT #: 0009L741

WORK ORDER: 10985-001-001-9999-00

SAMPLE	SITE ID	ANALYTE	INITIAL RESULT	REPLICATE	RPD	DILUTION FACTOR (REP)
-004REP	B107J4	Cadmium, TCLP Leachate	4.8 u	4.8 u	NC	1.0
		Chromium, TCLP Leachate	42.3	38.2	10.2	1.0
		Lead, TCLP Leachate	22.1 u	22.1 u	NC	1.0

008 Days
~~009~~
11/9/a

Recra LabNet - Lionville

INORGANICS LABORATORY CONTROL STANDARDS REPORT 11/06/00

CLIENT: TNUHANFORD B00-076 H1055 RECRA LOT #: 0009L741

WORK ORDER: 10985-001-001-9999-00

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	SPIKED AMOUNT	UNITS	%RECOV
LCS1	99L1626-LC1	Cadmium, LCS	220	250	UG/L	88.1
		Chromium, LCS	457	500	UG/L	91.5
		Lead, LCS	2350	2500	UG/L	93.9

009 Days
~~010~~
11/9/6

Recra LabNet - Lionville Laboratory
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD B00-076 H1055

DATE RECEIVED: 09/26/00 RFW LOT # :0009L741

CLIENT ID /ANALYSIS	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
B107K0						
TCLP	001	SO	00LTO113	09/22/00	10/10/00	10/11/00
B107J4						
TCLP	002	SO	00LTO113	09/22/00	10/10/00	10/11/00
B107K0						
CADMIUM, TCLP LEACHA	003	W	99L1626	10/11/00	10/13/00	10/14/00
CHROMIUM, TCLP LEACH	003	W	99L1626	10/11/00	10/13/00	10/14/00
LEAD, TCLP LEACHATE	003	W	99L1626	10/11/00	10/13/00	10/14/00
B107J4						
CADMIUM, TCLP LEACHA	004	W	99L1626	10/11/00	10/13/00	10/14/00
CADMIUM, TCLP LEACHA	004 REP	W	99L1626	10/11/00	10/13/00	10/14/00
CADMIUM, TCLP LEACHA	004 MS	W	99L1626	10/11/00	10/13/00	10/14/00
CHROMIUM, TCLP LEACH	004	W	99L1626	10/11/00	10/13/00	10/14/00
CHROMIUM, TCLP LEACH	004 REP	W	99L1626	10/11/00	10/13/00	10/14/00
CHROMIUM, TCLP LEACH	004 MS	W	99L1626	10/11/00	10/13/00	10/14/00
LEAD, TCLP LEACHATE	004	W	99L1626	10/11/00	10/13/00	10/14/00
LEAD, TCLP LEACHATE	004 REP	W	99L1626	10/11/00	10/13/00	10/14/00
LEAD, TCLP LEACHATE	004 MS	W	99L1626	10/11/00	10/13/00	10/14/00

LAB QC:

CADMIUM LABORATORY	LC1 BS	W	99L1626	N/A	10/13/00	10/14/00
CADMIUM, TCLP LEACHA	MB1	W	99L1626	N/A	10/13/00	10/14/00
CADMIUM, TCLP LEACHA	MB2	W	99L1626	N/A	10/13/00	10/14/00
CHROMIUM LABORATORY	LC1 BS	W	99L1626	N/A	10/13/00	10/14/00
CHROMIUM, TCLP LEACH	MB1	W	99L1626	N/A	10/13/00	10/14/00
CHROMIUM, TCLP LEACH	MB2	W	99L1626	N/A	10/13/00	10/14/00
LEAD LABORATORY	LC1 BS	W	99L1626	N/A	10/13/00	10/14/00
LEAD, TCLP LEACHATE	MB1	W	99L1626	N/A	10/13/00	10/14/00
LEAD, TCLP LEACHATE	MB2	W	99L1626	N/A	10/13/00	10/14/00

010 Days
~~001~~ 11/9/00

RECRA LabNet Use Only: 0009L741

Custody Transfer Record/Lab Work Request

Page 1 of 1

RECRA LabNet

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS (9) Metals Dig.

Client: TNU-HANFORD SAF # B00-076

Est. Final Proj. Sampling Date:

Project #: 10985-001-001-9999-00

Project Contact/Phone #:

RECRA Project Manager: OJ

QC: Spec Del: Std TAT: 15 day

Date Rec'd: 9-26-00 Date Due: 10-11-00

Account #:

	Metal	Leachates
Refrigerator #	4	
#/Type Container – Liquid		
#/Type Container – Solid	1AG	
Volume – Liquid		
Volume – Solid	250	
Preservatives	—	

ANALYSES REQUESTED → ORGANIC: VOA, BNA, Pest/PCB, Herb; INORG: Metal, CN; Leachates

RECRA LabNet Use Only: Metal – ITCLP; Leachates – Cd Cr Pb

MATRIX CODES: S - Soil; SE - Sediment; SO - Solid; SL - Sludge; W - Water; O - Oil; A - Air; DS - Drum Solids; DL - Drum Liquids; L - EP/TCLP Leachate; WI - Wipe; X - Other; F - Fish

Lab ID	Client ID/Description	Matrix QC Chosen (✓) MS	MSD	Matrix (So)	Date Collected	Time Collected	Metal (ITCLP)	Leachates (Cd Cr Pb)
001	B107K0			X	9/22/00	0850	1	
002	⊥ J4			⊥	⊥	1015	1	
003	B107K0 tclp of 001			L	*	-		✓
004	⊥ J4 ⊥ 002			⊥	⊥	-		✓

Special Instructions: Saf B00-076

BATCH WASTE

Use in hood! Samples contain asbestos

DATE/REVISIONS:

1. Run Matrix QC
2. * See lab chron
3. 9-28-00 Batch Waste
4.
5.
6.

RECRA LabNet Use Only

Samples were: ✓
1) Shipped ✓ or Hand Delivered
Airbill # See Below
2) Ambient or Chilled (Ambient circled)
3) Received in Good Condition (Y) or N
4) Labels Indicate Properly Preserved (Y) or N
5) Received Within Holding Times (Y) or N

COC Tape was:
1) Present on Outer Package (Y) or N
2) Unbroken on Outer Package (Y) or N
3) Present on Sample (Y) or N
4) Unbroken on Sample (Y) or N
COC Record Present Upon Sample Rec't (Y) or N
Cooler Temp. 17.9 °C

Relinquished by	Received by	Date	Time
Fed Ex	[signature]	9/26/00	0920

Relinquished by	Received by	Date	Time
[redacted]	TK 9-28-00		

ORIGINAL REWRITTEN

Discrepancies Between Samples Labels and COC Record? Y or (N)

NOTES: 4235 7953 9297

Bechtel Hanford Inc. | **CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST** | B00-076-11 | Page 1 of 1

Collector: Fahlberg / Bowers D2	Company Contact: D Jacques	Telephone No.: 373-5299	Project Coordinator: TRENT, SJ
Price Code: 9K	Data Turnaround: 15 Days	Air Quality	
Project Designation: SM&T Asbestos Abatement Sampling	Sampling Location: 200 Area 224B Outside #8		SAF No.: B00-076
Ice Chest No.: ERC 99-048 (DFD)	Field Logbook No.: EL 1517	COA: BRISIK1B80	Method of Shipment: Fed-EX
Shipped To: TMA/RECRA	Offsite Property No.: ABQ0342		Bill of Lading/Air Bill No.: 42357953 9787

POSSIBLE SAMPLE HAZARDS/REMARKS

Special Handling and/or Storage

Preservation	None	None									
Type of Container	aG	aG									
No. of Container(s)	0	1									
Volume	250mL	250mL									
SAMPLE ANALYSIS	Isotopic Uranium	Metals by ICP (TCLP) - 1311/6010 (Cadmium, Chromium, Lead)									
Sample No.	Matrix *	Sample Date	Sample Time								
B107K0	OTHER SOLID	9-22-00	0850		X						

CHAIN OF POSSESSION — **Sign/Print Names**

Relinquished By	Date/Time	Received By	Date/Time
Doug Bowers	9-22-00 / 1355	R Thoren	9.22.00 1355
R Thoren	9.22.00 1400	S Haredin	9-22-00 1400
Ref 2C 3728	9.25.00 0800	R Thoren	9.25.00 0800
R Thoren	9.25.00 0800	FedEx	
FedEx	9/26/00 0920	P Hernandez	9/26/00 0920

SPECIAL INSTRUCTIONS

Samples originated in non-RAD controlled area < 2000 pCi/g. NO TA required

Matrix *: S - Soil; SE - Sediment; SO - Solid; SL - Sludge; W - Water; O - Oil; A - Air; DS - Drum Solids; DL - Drum Liquids; T - Tissue; WI - Wipe; L - Liquid; V - Vegetation; X - Other

LABORATORY SECTION	Received By	Title	Date/Time
FINAL SAMPLE DISPOSITION	Disposal Method	Disposed By	Date/Time

BHI-EE-011 (10/99)

Bechtel Hanford Inc.

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

B00-076-05 | Page 1 of 1

Collector: Fahlberg / Bowers DL	Company Contact: D Jacques — Telephone No. 373-5299	Project Coordinator: TRENT, SJ	Price Code 9K — Data Turnaround 15 Days
Project Designation: SM&T Asbestos Abatement Sampling	Sampling Location: ~~200 Area~~ 181-N #3	SAF No. B00-076	Air Quality
Ice Chest No. ERC 99-048 (1 of 1)	Field Logbook No. EL 1517 — COA BRIS1K1B80	Method of Shipment: Fed-EX	
Shipped To: TMA/RECRA	Offsite Property No. A000342	Bill of Lading/Air Bill No. 4235 7453 9287	

POSSIBLE SAMPLE HAZARDS/REMARKS

Special Handling and/or Storage

Preservation	None
Type of Container	aG
No. of Container(s)	1
Volume	250mL
SAMPLE ANALYSIS	Metals by ICP (TCLP) - 1311/6010 (Cadmium, Chromium, Lead)

Sample No.	Matrix *	Sample Date	Sample Time	Metals by ICP (TCLP)
B107J4	OTHER SOLID	9-22-00	1015	X

CHAIN OF POSSESSION — Sign/Print Names

Relinquished By	Date/Time	Received By	Date/Time
Doug Bowers / Doug Bowers	9-22-00 / 1353	R Thoren / R. Thoren	1353 9.22.00
R Thoren / R. Thoren	1400 9.22.00	Stored in Ref. 2C 3728	1400 9.22.00
Removed from Ref 2C 3728	0800 9.25.00	R Thoren / R. Thoren	0800 9.25.00
R Thoren / R. Thoren	0800 9.25.00	FEDEX	
Fed EX	9/26/00 0920	[signature]	9/26/00 0920

SPECIAL INSTRUCTIONS

Samples originated in non Rad-Controlled area. <2000pCi/g. no TA required

Matrix *
S=Soil
SE=Sediment
SO=Solid
SL=Sludge
W=Water
O=Oil
A=Air
DS=Drum Solids
DL=Drum Liquids
T=Tissue
WI=Wipe
L=Liquid
V=Vegetation
X=Other

LABORATORY SECTION	Received By	Title	Date/Time
FINAL SAMPLE DISPOSITION	Disposal Method	Disposed By	Date/Time